

1. A method of ameliorating neuronal degeneration in a subject comprising administering to the subject a trophic amount of a composition comprising a hedgehog therapeutic and a neurotrophic factor.
- 5 2. The method of claim 1, wherein the hedgehog therapeutic comprises a full length mature hedgehog polypeptide or a bioactive fragment of a hedgehog polypeptide.
- 10 3. The method of claim 2, wherein the sequence of the hedgehog therapeutic comprises at least the sequence of residue 24-197 of SEQ ID No. 15 or residueus 28-202 of SEQ ID No. 16 or residues 28-202 of 23-198 of SEQ ID No. 17.
- 15 4. The method of claim 2, wherein the hedgehog therapeutic comprises a naturally occurring hedgehog polypeptide or a naturally occurring bioactive fragment thereof.
- 20 5. The method of claim 1, wherein the hedgehog therapeutic is administered to the subject by administering a viral expression vector for expressing a hedgehog therapeutic.
- 25 6. The method of claim 1, wherein there is neuronal degeneration of the cholinergic neurons of the basal forebrain of the subject.
7. The method of claim 1, wherein the subject suffers from or suffers from a predisposition for Alzheimer's Disease.
8. The method of claim 1, wherein there is neuronal degeneration of the dopaminergic or GABAergic neurons.
- 30 9. The method of claim 1, wherein the subject suffers from or suffers from a predisposition for Parkinson's Disease, Huntingdon's Chorea or Amyotrophic Lateral Sclerosis.

10. The method of claim 1, wherein the composition comprises a factor selected from the group consisting of IGF-1, active truncated derivatives thereof, aFGF, bFGF, PDGF, GDNF, NT-3 and NT-4/5.
- 5 11. The method of claim 1, wherein the composition comprises NGF.
12. The method of claim 11, wherein the neurotrophic factor consists essentially of NGF.
- 10 13. The method of claim 1, wherein the composition comprises BDNF or CNTF.
14. The method of claim 13, wherein the neurotrophic factor consists essentially of BDNF, CNTF or a mixture thereof.
- 15 15. A kit comprising a hedgehog therapeutic in a pharmaceutically acceptable carrier and a neurotrophic factor in a pharmaceutically acceptable carrier.
16. The kit of claim 15, which further comprises a label that indicates the kit can be used in the treatment, amelioration or prevention of neuronal degeneration in a subject.
- 20 17. The kit of claim 16, in which the label indicates the kit can be used in the treatment, amelioration or prevention of Alzheimer's Disease.
- 25 18. The kit of claim 16, in which the label indicates the kit can be used in the treatment, amelioration or prevention of either Parkinson's Disease, Huntingdon's Chorea or Amyotrophic Lateral Sclerosis.
19. The kit of claim 16, in which the hedgehog therapeutic and the neurotrophic factor form a mixture.
- 30 20. The kit of claim 16, in which the wherein the hedgehog therapeutic comprises a full length mature hedgehog polypeptide or a bioactive fragment of a hedgehog

polypeptide.

21. The kit of claim 20, in which the sequence of the hedgehog therapeutic comprises at least the sequence of residues 24-197 of SEQ ID No. 15 or residues 28-202 of SEQ ID No. 16 or residues 28-202 of 23-198 of SEQ ID No. 17.
22. The kit of claim 16, in which the hedgehog therapeutic comprises a naturally occurring hedgehog polypeptide or a naturally occurring bioactive fragment thereof.
23. The kit of claim 16, in which the hedgehog therapeutic is a viral expression vector for expressing a hedgehog therapeutic.
24. The kit of claim 16, in which the neurotrophic factor comprises NGF.
25. The kit of claim 24, in which the neurotrophic factor consists essentially of NGF.
26. The kit of claim 15, in which the neurotrophic factor comprises BDNF or CNTF.
27. The kit of claim 15, in which the neurotrophic factor consists essentially of BDNF, CNTF or a mixture thereof.
28. The kit of claim 15, in which the neurotrophic factor comprises a factor selected from the group consisting of IGF-1, active truncated derivatives thereof, aFGF, bFGF, PDGF, GDNF, NT-3 and NT-4/5.